30 $y = \tan x$ tan line $\parallel$ $y = 2x$ (same slope)

$\frac{d}{dx}\tan x = \sec^2 x = 2$ (slope)

$x = \pm .785$

$x = \pm \frac{\pi}{4}$

$\sec x = \sqrt{2}$

$\frac{1}{\cos x} = \sqrt{2}$

$\cos x = \frac{1}{\sqrt{2}} \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$x = \frac{\pi}{4}$

Sep 22-9:58 AM

37. $f(x) = \begin{cases} x+b & x<0 \\ \cos x & x \geq 0 \end{cases}$

find b so that

a) continuous $b=1$ (lim $\cos 0$ = lim $0+b$)

b) differentiable $b=\cos 0$ $b=1$

no way jay

Sep 22-10:19 AM

3.6a Chain Rule

Use chain.tns to discover the amazing chain rule for derivatives of composite functions.

$f(g(x))$

$\frac{d}{dx} f(g(x)) = g'(x) \cdot f'(g(x))$

the mighty chain rule

Sep 20-7:23 PM

If a particle moves along the x-axis so that its position is given by x(t)=cos(t^2+1), find the velocity.

$v(t) = -2t \sin(t^2+1)$

Sep 20-7:33 PM

Find dy/dx:

$y = \sin(x^2 + x)$ $y' = (2x+1)\cdot\cos(x^2+x)$

$y = \sin^5 x = (\sin x)^5$ $y' = \cos x \cdot 5\sin^4 x$

$y = (x^3 + 2x - 1)^4$ $y' = (3x^2+2)\,4(x^3+2x-1)^3$

$y = (x^3 - x)^5 \sin(3x)$

$y' = (x^3-x)^5 \cdot 3\cos(3x) + \sin(3x)\cdot(3x^2-1)\,5(x^3-x)^4$

Sep 20-7:35 PM

Oct 11-3:19 PM